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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

Vol. I | New York, December 10, 1917 | No. 10

The Toluol Situation

A few years ago when all the coal tar distillation of the United States was confined to practically one factory the aim was only to produce Naphthaline, Solvent Naphtha and Benzol, with practically no attempt to recover Toluol. There was no market for it in this country because we made none of its immediate derivatives. We imported all intermediates which involved their use as a starting point, and their prices were not disproportionate to the derivatives of other aromatic hydrocarbons. The first Badische synthesis of Indigo started with Toluol and was abandoned because it was figured that the world's available supply of this material could never meet the ambitions of a firm that had determined to displace natural Indigo entirely. If the world's present production of Toluol had been realized then, we might have seen synthetic Indigo many years earlier, and the present process, utilizing Naphthalene, might not have been discovered at all.

The chemical market remembers the flurries in Picric Acid in the early days of the war and also how some speculators were caught when the word was passed that Picric Acid had been set set aside in favor of T.N.T. Tri-nitrotoluol had displaced it because it was safer, although not so powerful an explosive. This change in explosives ran Toluol up to unheard-of prices, and even when the supply began to increase the entry of this country into the war again made the situation acute.

The gas works of the country are now removing as much Toluol as possible from the illuminating gas and saving it for conversion into T.N.T. One dyestuff and intermediate manufacturer after another sees his supply cut off and unless he can show that the output of his works goes ultimately into Government goods he gets no more Toluol, and of course none of the derivatives of it.

But!—suppose some day in the near future a chemist, or some mere person who doesn't know any better, finds a way to protect the interior of shells from the action of Picric Acid and it becomes possible to return to this more powerful explosive—then there would be a change in the market.

There is always a possibility of such things and if Toluol became, for a time, a drug on the market we would be able to buy Toluidine, Metatoluylenediamine and the other essential intermediates at considerably lower prices and give an added impetus to our domestic dye industries.

There is much more Benzol than Toluol produced and there will be many advantages for the dyestuff manufacturers if circumstances cause a return to Picric Acid as the principal explosive.

The same would be true if a new explosive should be invented. We may expect a sudden change in the Toluol situation as soon as there is a prospect of it being released from military duty. At present the manufacture of dyes is seriously threatened by the Government's demand for all the available Toluol. The dull effects will be felt in a few months and the problem is one worthy of the concerted attention of all interested in the welfare of the dyestuff industry.

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LEADING distributors of Chemicals, Colors, Dyestuffs, Gums and Oils to the Textile Industry.

From time to time, we are receiving dependable shipments of ACID, BASIC, DIRECT, SULPHUR and "CIBA" FAST VAT DYES, and offer these in reasonable quantities.

Correspondence invited

A. KLIPSTEIN & COMPANY
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Much has been said already regarding the interdependence of the dye, explosive and pharmaceutical industries, and their importance to the national defense. They should all be capable of existing at the same time while contributing to each other, and in periods of necessity throw all their resources together. The German system evidently had this arranged in a satisfactory manner and protected private capital that formed part of the system. None of our system is Government owned and whatever capital is invested in the dyestuff branch may now be jeopardized and the profits of the explosive branch increased by legislative control of raw materials. We must win the war, and we need the explosives, but at the same time feel that recognition should be taken of the fact that much capital has been invested in dye factories and much hard work has been done up to this time without many of the newer plants having made enough money to repay them.

A commission composed of men from both industries might be able to decide on a plan that would take care of the needs of explosives and dyes equitably, both as regards Toluol and Nitric Acid. As a magazine writer said recently: "We are willing to have our pie crust made of corn meal, and enjoy it, if we know that the wheat flour is being used for a good purpose, but when we discover that our sacrifices are increasing the profits of some other fellow we naturally object."

We believe the matter can be adjusted by those who know how. The dyestuff men are not united at present and have no great popularity at Washington, while the explosive interests have considerable influence and know how to get what they want. Some have said they see no reason for a dyestuff manufacturers' association, but there are very many reasons, —think it over.

The Situation in Dyestuffs

There is a marked demand in the trade for bright shades. This is no doubt due to the coming Spring, and according to the advice of manufacturers the demand will be met.

A number of early inquiries have been for greens and blues. Quite a number of manufacturers of ladies' suits are calling for khaki shades for materials which will have a military tone.

Owing to the demand of the Government for this color the orders of the manufacturers will perhaps be cut, but one manufacturer advises us that in his opinion a fair percentage of their demand will be met.

During the week there has been very little change in the standard colors, the majority of manufacturers being engaged on filling contracts for Government requirements.

Some new companies are now placing colors on the market and there is a marked quality and uniformity in each product which should be of much encouragement to the trade.

The REPORTER will be glad to answer any inquiries.

Malachite Green

A company in New York City is now placing upon the market a Malachite Green in crystal form which is of a very high quality. This product is manufactured in their own plant.

DICKS, DAVID CO., INC.

Manufacturers

Methyl Violets, Fuchsine and Soluble Blue

302 Broadway, N. Y.

Works: Newark, N. J. Chicago Heights, Ill.

Agents for Essex Aniline Co.

To Increase Potash Supply

Secretary Lane today issued regulations for permission to prospect for potash on public lands. For some years all lands known to contain potash have been withdrawn from public acquisition, but the cutting off of potash from Germany makes it necessary to develop this country's supply of the valuable mineral.

Permits may be issued to citizens, associations, and corporations of the United States for the exploration of not exceeding 2,560 acres each of land in compact form, the permits to be for a period of two years. If potash is discovered in commercial quantity and quality, the permittee will be entitled to a patent for one-fourth of the area covered by his permit, the remainder to be subject to lease by the Government.

Alizarine Red

America is now producing Alizarine Red, and a dyestuff manufacturer is putting this on the market in the form of a 20 per cent paste which it is claimed is equal in all respects to that formerly imported. Alizarine Red is chiefly used in cotton printing and wool dyeing, and any comments on its application are not necessary as this is well known to the trade.

Notes of the Trade

We are informed that the Grasselli Chemical Company of New York City has declared an extra dividend on the common stock which amounts to approximately $4.15 a share. This brings the total outstanding issue to $15,000,000 which is the amount authorized.

L. H. Butcher Co., New York and San Francisco, has ben incorporated under New York State laws to manufacture and deal in colors, chemicals, minerals and industrial ores. The company's principal offices are at 100 William Street, and the officers are S. L. Schwartz, president; J. E. Schwartz, vice-president; Virgil G. Thomas, secretary and treasurer. Messrs. Schwartz are in San Francisco, and Mr. Thomas in New York.

American Dyewood Co.

... *Manufacturers of* ...

Dyewood Extracts

Chipped and Ground Dyewoods

Importers of

Aniline Colors and Indigo

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Works: CHESTER, PA.

The directors of the General Chemical Company of New York City, have recently declared an extra dividend of 5 per cent on common stock at par, and a special of 2½ per cent in cash which is payable to the common stockholders on February 1st. The regular quarterly dividend of one and one-half per cent was declared on the preferred stock.

The Chemical Corporation of New Jersey, has moved its main office from Broad Street to 101 Belevista Avenue, Belleville, N. J.

Reiff & Nestor Co., Lykens, Pa., have been incorporated under Pennsylvania laws, with a capital of $140,000, to handle dyestuffs. J. P. Nestor is treasurer of the company.

The Brown-Ferrer, Inc., Plainfield, N. J., has been incorporated to manufacture chemicals. The capital is $50,000, and the incorporators are John S. Johnston, Gustave and Louis A. Clement.

Chemical trading between this country and South American countries, according to the National City Bank of this city, is about three times as great as it was previous to the war. For the first eight months of this year our exports to South America totalled $188,000,000 as compared with $65,000,000 for the same period of 1914.

H. G. Stevensen, Philadelphia, dealer in aniline colors, has moved his offices to the laboratory and warehouse at 5 East Osborne Street, Wissaheckon.

The Franco Color Co., Philadelphia, has been organized by W. H. Ott and Willaim Blatteau to sell colors.

The acid department of the Aetna Explosives Co. plant at Drummondsville, Que., is now being operated to capacity on the production of sulphuric and nitric acids, with a production of approximately 3,000 tons a month. This plant was recently reopened by the Aetna Co. after being closed for several months.

The Brown Ferres Co., Inc., manufacturer of phenacetine and other chemicals, has leased the two-story reinforced-concrete factory building on Meadow Lane, Newark, N. J., from the Ezo Co. The company is planning for immediate occupancy, and will construct an addition to double the capacity of the building.

The National Synthetic Co., Fords, N. J., manufacturer of chemicals, has awarded a contract for the construction of three new additions to its plant, about 38 x 260 feet, 54 x 84 feet, and 50 x 76 feet, to cost about $75,000. Tullis & Blanchard, 326 East Forty-second Street, New Yory, are the contractors.

Exportation of Domestic Aniline Colors

Notwithstanding the constantly increasing demands of the domestic market and the handicap caused by munition manufacturers drawing more and more largely on the available supply of toluol and other coal-tar derivatives vitally essential as raw material for the dyestuff industry, exports of aniline colors during September show a gain over the preced-

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SIZING SPECIALTIES CO.
INCORPORATED
JERSEY CITY NEW JERSEY

ing month of $66,800, or 21.9 per cent, according to a statement issued to-day by the Bureau of Foreign and Domestic Commerce, of the Department of Commerce. September exports by Customs Districts indicate that $261,454, or over two-thirds the total value of all aniline colors shipped abroad, passed through New York; $47,913 through the Massachusetts District, $6,515 through West Coast Districts, $1,630 across our Mexican border, and the remainder through districts adjacent to Canada.

The total exportation of aniline colors for the first quarter of the current fiscal year amounted to $1,173,439, of which $497,106 worth was shipped in July, distributed among 21 foreign countries; $304,768 in August to 21 countries; and $371,565 in September to 17 countries—or an average monthly exportation of $391,146 for the first quarter in which aniline dyes are shown separately in the statistical classification.

England is our best customer so far, having taken $195,195 of the aniline colors exported during the quarter ending September 30, 1917, followed by British India, with $185,967; Canada, $161,581; Spain, $105,504; France, $86,379; Japan, $80,073; Mexico, $75,353; Italy, $67,484, and other countries with less extensive purchases.

It is worthy of note that the United States is the only country which has succeeded in establishing, since the war began, a successful dyestuff industry capable of meeting not only the color requirements of its domestic manufacturers of textiles, paper, paints and pigments, leather, straw, inks, stains, varnishes, waxes, etc., but of exporting considerable quantities to our allies and neutral countries.

Using the quarterly figures as a basis for the estimate, we are now exporting our surplus production of aniline colors at the rate of $4,693,756 annually, or practically twice the value of our entire domestic production for the fiscal year 1914, which amounted to $2,470,096. This refers to values only, which are, of course, much higher comparatively at the present time.

These figures of production and exportation apply to the coal-tar dyes only, and take no account of our equally well developed trade in logwood extract, osage orange, and other vegetable colors.

Patriotism in the Dyestuff Industry

A particularly large service flag has just been hung over the offices of the National Aniline & Chemical Company, 244 Madison Avenue, New York City. Two hundred and twelve members of their organization have enlisted with Uncle Sam and are at the present moment serving with the colors. These 212 employees are distributed as follows: 72 from the Schoellkopf Works, Buffalo, New York; 55 from W. Becker's Works, Brooklyn, New York; 54 from the Benzol Products Works, Marcus Hook, Pennsylvania; 15 from Wappingers Falls Works, Wappingers Falls, New York; the remaining number coming from various smaller offices of the Company.

This Company has also supplied large quantities of Sulphur Khaki for the dyeing of cotton goods for the Government, and Alizarine Blue for Navy uniforms.

The

METH-O-LENE CO., Inc.

offer

Methylene Blue
Methylene Green

For samples and quotations write

BINNEY & SMITH CO.
Sole Agents
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National Dyestuff Association

Replies Continue and the Evident Interest Assures the Success of the Movement

Among replies that have been received this week are the following:

Madero Bros., Inc., New York City—"We have your kind communication and would be very pleased to attend a meeting at any time that you may care to arrange. We consider it a very good idea to get all the dyestuff manufacturers in this country together, even if this particular purpose could not be obtained."

Dunker & Perkins, Boston, Mass.—"In reply to your letter relating to the movement on foot toward standardization of our American Colors, beg to say that we are only too pleased to put ourselves on record as being heartily in accord with any movement tending to improve the present conditions of the dyestuffs industry. We would, therefore, be very glad to have you keep us informed as to dates set for any meeting, which we would be very pleased to attend."

Frank L. Young Co., Boston, Mass.—"We would be very glad to join in any movement for the benefit of the trade. Kindly let us know further about the proposed meeting, and we will be glad to co-operate with you."

Dudley D. Gessler, Philadelphia, Pa.—"We would be interested in anything that would tend to standardize American colors and to promote the American dyestuffs industry. You have our best wishes for success, and anything the writer can do to further its purpose he will take pleasure in doing."

Holliday-Kemp Co., Inc., New York City.—"In reply to your favor we beg to say that the date set for the proposed meeting in January will be satisfactory to us and we will endeavor to have a representative present."

John D. Lewis, Providence, R. I.—"Should be pleased to attend your proposed meeting of manufacturers of dyestuffs and the week of January 21st is acceptable to me."

J. G. Rutherford & Co., 505 Broome St., New York—"You can be assured of our coöperation in the proposed convention for the purpose of standardizing American colors. Wishing you success in your good work, etc."

The Barnes Chemical Works, Paterson, N. J.—"We shall avail ourselves of the opportunity to met with you in January next, and await further advice regarding the conference."

Sherman & Mason, 211 North Front St., Philadelphia—"Your ideas on the subject of a standardization of American made colors and dyestuffs are excellent and we are entirely in accord with them. We will be very pleased to attend the meeting to discuss the subject any time during the week of January 21st, 1918, or at any other time which may be convenient to the trade as a whole. We desire further detail as progress is made."

Imex Corporation, 25 Beaver St., New York—"We will be pleased to attend such conference as outlined in your letter and at the time you suggest."

A. & B. Export and Import Corporation, 78 Wall St., New York—"We shall be pleased to attend the meeting referred to in your letter and at the time you mention in January, 1918."

Ponceau Scarlet Napthol Green
Chrome Black Chrome Yellow

Manufactured by

Dye Products and Chemical Co., Inc.
Office: 200 Fifth Ave., New York Works: Newark, N. J.

AMERICAN DYESTUFF REPORTER

Published weekly by
BLACK PUBLISHING CO.,
470 Fourth Ave., New York

DANIEL W. HEWITT, President
A. P. HOWES, Vice President
ELISHA HEWITT, Secretary and Treasurer

MYRON DREW REESER, Managing Editor

Domestic Subscription, $3 per year. Foreign, $4.
Advertising rates on request

Regarding the Inquiry Department

In the initial issue of the AMERICAN DYESTUFF REPORTER we published the following announcement regarding our intention to answer any questions that would be asked us by consumers of dyestuffs, colors and chemicals:

> The publishers of the REPORTER have arranged with an independent chemist of wide reputation, who has under his direction one of the best equipped laboratories in New York, to handle all questions of a technical nature which come to us. His services are at the disposal of our readers free of charge insofar as the answering of inquiries is concerned, and he will also be glad to test samples, etc., without charge, except where the process is unusually tedious or expensive, in which case a charge covering the actual cost will be made. We trust that our readers will make full use of this service.

Full use has been made of this service and the department has proven of value to the consumer, as their many letters testify, some of which are as follows:

Gentlemen:

We hope to see your publication grow and believe it has been started along fundamental lines that will attract favorable comment and support from the trade in general.

Thank you for reply to our questions of October 20th.

Gentlemen:

We are very much interested in your inquiry department and shall take pleasure in reading each issue.

If you could give us some information as to where we could obtain a supply of direct browns on the yellow shade, this information would be very much appreciated as we have had considerable difficulty in obtaining this.

Dear Sir:

I have yours of the twenty-third answering my question regarding the combination of dyes to produce white on paper pulp, for which I thank you very much.

The following are a few of the inquiries which were sent us, the writer's name being withheld.

The REPORTER will be glad to answer any inquiry, and to facilitate a reply would advise the use of the number by which each inquiry is designated.

2001. Is it possible for a chemist to make an analysis of a Logwood extract and tell accurately just how much Hematine and Hematoxylon are present?

2002. What are the necessary features for an Alkali Blue to have in order to be suitable for lake making? Several lots that were considered fine for dyeing were rejected by a lake maker as being unsuitable.

2003. Can you inform me how I can obtain a red stain soluble in alcohol which will be impervious to water? I wish to use it in refinishing leather goods and will use a small amount of shellac in the liquid.

2004. Why are Basic dyes and Acid dyes so called?

2005. Why is the Malachite Green now being offered by American manufacturers a bronzy powder, while the old German types were all in flat greenish crystals?

2006. While there are many direct cotton dyes being made, we hear very little of union colors. What is the nature of a union dye and how do they differ from direct cotton dyes?

2007. What are the United States Government's requirements for the dye of Olive Drab or Khaki on uniform cloths?

2008. What dyes are at present available for producing fast Navy Blue on cotton?

2009. What was the fastest dyestuff of simple dyeing process before the introduction of the vat colors?

2010. What aniline dyes are used to produce the stain for fumed oak which will show the quartering marks light instead of dark?

2011. What is the meaning of the term "pure dye" as applied to silk goods? What specifications does a dye have to meet for the purpose?

2012. Have any of the American manufacturers taken up the production of the solid hydrosulphites used for vat dyeing, stripping and discharging?

2013. How is Nigrosine tested by dyeing on wool? The best results we have been able to obtain are all thin greys and blues which wash out and rub.

2014. What is the best way to dye Congo Red and have the shade remain bright for a reasonable length of time?

2015. What are the best dyes to sell to a candy manufacturer which will be bright and yet non-poisonous?

2016. I have some dyeing recipes that call for the use of bichromate of potash, but as this is now so high in price and as I was told that bichromate of soda could be used instead, I would like to know how much of the latter to use to get the same effect, and is there any difference in the working of the two substances?

2017. Several dyers have told me that they prefer Indigotine from natural indigo to that made from pure synthetic indigo. Is this only prejudice, or is there a reason?

2018. What is the cause of the insoluble matter and dull shades of some lots of American made Fuchsine?

Progress of British Dye Syndicate

The report of the British dye syndicate (British Dyes, Ltd.) for the year ending April 30, 1917, indicates that very satisfactory progress has been made. A dividend of 6 per cent was recommended by the board of directors, this being the maximum amount allowed. At the annual meeting, just held, it was stated that the production of dyes continues to be limited by the shortage of certain materials, but notwithstanding this the supply throughout the year has been increased and the variety of dyes extended. An extensive plant for the production of

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(CRYSTALS)

COSMIC ANILINE WORKS, Inc.
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azo colors has been completed and is now in operation.

The range of direct cotton colors has been supplemented by the inclusion of a yellow, violet, and green and the supply of wool colors of this type has been enlarged. The production of methylene blue has also been largely increased, as well as the output of mordant colors, which is now stated to be sufficient to meet the demands made upon the company for dyestuffs used in the manufacture of the varied clothing equipment of both British and allied troops. Among the vat dyes of the indanthrene type a blue and yellow are now being made, and it is hoped shortly to extend the range of these colors. The company has produced a color similar to the alizarin blue dyestuff for wool of exceptional fastness to the action of light.

Manufacture of Intermediates—New Works Planned

Important installations for the manufacture of intermediates, including para-nitraniline and beta-naphthol, have been completed. Plants for the manufacture of other products are being proceeded with as rapidly as possible, and as these come into operation they will provide materials from which the variety as well as the quantity of colors manufactured can be augmented.

In addition to the plant referred to, the following important work, as well as much minor work, has been carried out:

(1) The construction of the works railway and its branches has been well advanced toward completion.

(2) A number of large new sheds for the manufacture of intermediates and colors have been completed.

(3) The electrical installation has been completed, and both the old and the new works are now entirely operated by the company's own plant.

(4) A power gas plant has been installed and is in operation.

(5) A water-service reservoir with a capacity of 2,000,000 gallons has been constructed.

(6) A pipe system for the distribution of gas, steam, and compressed air throughout the works is approaching completion.

Coöperation

The work of the research department has received a great deal of attention during the year, and increased facilities for laboratory and experimental work have been provided. As soon as arrangements can be made for the supply of labor and materials, the construction of the main research laboratory at Huddersfield will be commenced, the plans having already been prepared. In the meantime, research work on behalf of the company is being carried on at the Universities of Oxford, Leeds, and Liverpool, in addition to the work done in the several laboratories attached to the works.

The question of coöperation among dye manufacturers has been engaging the attention of the Board of Trade throughout the year, but no definite steps in this direction have yet been taken. The directors of British Dyes have throughout maintained the attitude that they will welcome any tangible proposal for coöperation with other manufacturers, provided the interests of the textile and other industries dependent on the supply of dyes are safeguarded, and pro-

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MONTREAL, CANADA.

vided the coöperation can be carried into effect in a manner consistent with the object for which this company was established.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Colorimetric Tests vs. Dyeings

Question—Is a colorimetric test of a dyestuff to be depended upon in all cases or is a dyeing better?

Answer—A colorimetric test of a dye is only dependable when dealing with a straight product in comparison with a standard or type of identical composition. The presence of by-products or colors added for shading purposes will influence the results. If the conditions are favorable the figures are much more accurate than dyeings, but it is always a good plan to have dyeings made to confirm the colorimetric test, as they not only furnish something that may be kept for future reference but may show some defects that can exist apart from the mere color of the dyestuff. The colorimetric test merely shows the strength of the coloring matter but does not show level dyeing qualities, crocking, penetration, exhaust of dyebath and the many other details which are necessary features of a good dyestuff.

Dyes Suitable for Pinks

Question—What kind of a red is most suitable for making pinks?

Answer—To make a pink, a red must be exceptionally clear and bright and of a bluish shade. It should also have a high degree of fastness to light and acids and be level dyeing, for any defect in these respects will be much more noticeable in the light shades than in full shades.

Uses of Nigrosine

Question—Is Nigrosine a useful dyestuff, and for what lines of work?

Answer—Nigrosine as a dye is limited to pearl greys and slaty blues on wool and silk. The fastness to light and washing is not sufficient to meet ordinary requirements and heavier shades do not exhaust the bath and rub off quite easily. Cotton may be dyed from an alum bath but the color is very fugitive. The greys it produces on jute can be made more satisfactorily with acid blacks. With leather, however, there is no black dye equal to it in general properties. It dyes chrome leather a heavier color on the grain side than on the flesh side. It is not so easily affected by acids and alkalies as Direct Black and also resists light better. The color has no tendency to become dull and slaty but remains a brilliant black both in storage and in wear.

United States Conditioning & Testing Co.

New York 340 Hudson St.
Philadelphia 205 Chestnut St.
Paterson 220 Ellison St.

General Textile Testing

Dyestuff and Color Tests

Microscopic examinations Photomicrographs

Mahogany Stains for Wood

Question—What is the best combination of dyes for making a Mahogany stain on birch or cherry wood?

Answer—There are two classes of water stains, a spirit stain and an oil stain, each of which calls for a different combination of dyestuffs. On account of there being now no definite standards of strength it is not possible for us to give you exact figures, but it will be easy to make a good shade with a little experimenting. Basic water stain, which is strong, but not very fast to light, is made from Bismark Brown. The straight product is often quite satisfactory for general work. Redder shades are made by adding Fuchsine, and brown shades by the addition of about 10 per cent (of the total dye) of Malachite Green. If the shade of the brown is not yellow enough, substitute Chrysoidine for part of the Bismark Brown. Acid water stain, which is faster to light, has Orange A, Amaranth and Naphthol Black as the principal ingredients. These dyes must be in their highest concentration, otherwise the salt used for reduction will lower their solubility. In this case it is not so much a matter of color as to get dyes that will separate from a strong cold solution. Often, when it can be obtained, Crocein Orange is used in preference to Orange A on account of its better solubility. Glue or dextrin can be used as a binder. As all water stains raise the grain of wood, and make sandpapering necessary before varnishing, it is preferable to use spirit or oil stains. Spirit stain. Use denatured alcohol as the solvent and add a little shellac as a binder. The dyes recommended for basic water stain will answer equally well for spirit stain providing they are in full concentration and contain no insoluble materials. Oil stain. The principal difficulty in making oil stains is in the darkening colors, as all blacks, blues, greens and violets which are soluble in benzol or gasoline are decolorized by the action of turpentine, linseed oil, Chinese wood oil or any drying oils. One way to avoid this is by using only benzol as a solvent but any subsequent varnishing will have an effect on the dye. Oil orange, oil red, Sudan brown, oil red and oil yellow are satisfactory in every respect and a darkening effect may be produced by the addition of asphaltum or Gilsonite. After any oil color a thin shellac coat is needed, so the varnish will not re-dissolve the color and destroy its drying qualities. Oil colors which are straight azo products are much superior to those which are stearates of color bases, as there is less tendency to work through the varnish.

Census of Dyestuff Industry

Section 501 of the act of Congress, dated Sept. 8, 1916, provides for the taking of a special census of the production of intermediates, dyes and other coal-tar products in the United States. The act provides: "If, at the expiration of five years from the date of the passage of this Act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption" of intermediates and dyes, medicinals and other finished products, "he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied or collected." The President has requested the Tariff Commission to undertake the collection of information necessary for the exercise of this power.

The Commission is preparing for a systematic census of the production of all coal-tar products in a broad sense, including intermediates, dyes, medicinals, flavors, photographic chemicals and synthetic phenolic resins.

The Geological Survey has been for many years collecting statistics on the operation of coke oven plants, including production of the by-products coal-tar, benzol, toluol and napthalene. Arrangement has been made whereby duplication of work will be avoided by coöperation between the Survey and the Tariff Commission. Under this arrangement the Survey will continue to collect all the information on the operation of coke oven plants which it has been collecting in the past and in addition it will (1) distinguish between crude and refined naphthalene; (2) make an inquiry in regard to the manufacture of any intermediates at coke oven plants; (3) collect annually the statistics on the operations of gas houses;

(4) ascertain and report to the Tariff Commission confidentially, information in regard to the disposal of the materials, specified above, produced and sold by the coke ovens and gas plants. The Tariff Commission will not go directly to the coke plants or gas houses, but will secure statistics on the production of these plants from the Geological Survey. The Tariff Commission will make a detailed inquiry in regard to the development within the United States of the complex chemical industries which convert these by-products of the coke ovens into finished dyes, medicinals, photographic chemicals, flavors and synthetic phenolic resins. Over 150 firms are now engaged in the manufacture of these products within the United States.

The Tariff Commission will not make an independent inquiry in regard to the production of explosives in the United States, since other departments of the Government are following this closely. The Commission, however, will ascertain the production of intermediates derived from coal-tar and used in the making of explosives, such as diphenylamine used in the making of gun cotton for stabilizing smokeless powder. These intermediates, which are specifically mentioned in the Act, may be diverted to making dyes when the abnormal demand for explosives ceases.

Preliminary schedules, designed to aid the Commission in distinguishing between dealers and manufacturers, have been sent out, and the regular schedules calling for the condition of the industries affected during 1917 are in course of preparation. In addition to a detailed statement of the quantity and value of each intermediate and each substance classed for convenience under the general name "Coal-Tar Products," the schedule calls for data in regard to number of employees and rates of pay, research and experimental work, and amount of capital invested by each manufacturer.

The general investigation of the Commission into the chemical industries is progressing. Conferences have been held with interested specialists and with heads of other bureaus collecting information of a similar or related character, factories have been visited by agents of the Commission, the products affected have been classified, and information upon them is being compiled.

A general questionnaire designed to secure information in regard to the competitive conditions in the chemical industries will be sent out. Special emphasis will be laid on the branches of the chemical industries which have shown the most revolutionary changes during the war.

Dyestuffs and Their Names

Many Are Called After Naturalization in Country.

The introduction to the British market, just at the time when the delphiniums were in bloom, so that there could be no mistaking the allusion, of "alizarine delphinol," a British equivalent to the well-known German blue dye alizarine saphirol, affords an interesting example of the renaming of dyes after naturalization in this country. Similarly, the dye indanthrene blue, long desired by our cotton dyers, has become available under the names "chloranthrene" and "duranthrene."

These are quite excellent names, with just the euphony and the suggestiveness of the true tradition, and in each instance no doubt much anxious thought has gone to find so satisfactory a solution of a delicate problem. But we are still only at the beginning of our range of indigenous dyes, and if the process of renaming is to be continued throughout it is worth while to examine the principles upon which dyes have hitherto been named and known. The further question will also arise whether it is at all necessary to invent new names for well known dyes.

An examination of the names in a comprehensive list of pre-war dyes, for example, in Prof. Green's translation of the "Systematic Survey" of Schultz and Julius is very illuminating, especially so, perhaps, to the layman, to whose fresh ear the name magenta, for example, may still bear an allusion to the battle for Italian freedom which dates the discovery of the dye. Another fact which emerges is the large number of names under which almost any single dye has been known.

Chemical Names Unsatisfactory

Some other name than the full chemical one is doubtless necessary for any dye that is intended for commercial use, for these chemical names, which indicate the constitution of the molecule, are always far too cumbrous for ordinary tongues. Therefore each firm of manufacturers has exercised the utmost ingenuity in inventing names for its own range of dyes —names that shall be striking, easily spoken, and suggestive of the nature of the dye.

Leaving on one side the few purely descriptive names, such as soluble blue, the names of dyestuffs are drawn for the most part from topographical, chemical, floral and classical sources, with a very large proportion of hybrids. Thus, following the analogy of the famous Tyrian purple, we have Biebrich scarlet and Manchester brown, though the latter, by a strange inversion, is known in Manchester even now as Bismarck brown. Naphthol yellow and naphthylamine black are common examples of chemical, phloxine and erica of floral names. A certain appropriateness can be traced in some of the names from classical mythology; thus janus blue dyes cotton and wool equally and simultaneously. Names of precious stones are also drawn upon, and there is a smaller class of purely invented names, such as ciba and immedial.

But it is in the compound words that the dyestuff names attain their full character. In this way we get thioflavine, helindone, erioglaucine, melanthrene, setopaline, diaminogne and scores such.

Clues to Its Nature

Many of the component roots in these words occur again and again in other permutations, so that an analysis of the name usually gives some clue to the nature of a dye. Thus flavanthrene indicates a yellow dye derived from anthracene. The correlated blue dye indanthrene, however, claims relationship in its first syllable with indigo, the "king of dyes." As if to prove, on the other hand, that a rose by any other name would dye (and sell) as well, one of the important German firms has chosen names such as Mikado, Zambesi and Chicago, which have no conceivable connection with color; and one may even surmise that, just as in similar domestic circumstances, the strange name has been adopted in sheer desperation of deciding between rival claims.

Having, however, settled the name of the dyestuff you are about to offer to the dyer, you will find it necessary to distinguish by means of letters or numbers the various qualities of shade and strength which you are prepared to supply. Thus "G" will indicate a green shade of blue and "R" a red shade; and it is noteworthy in some instances that the dyer, as if to escape the confusion of the multiplicity of names, has seized on these terminal letters and given them full currency value. In this way "Black BH" or even "BH" alone is recognized throughout the cotton dyeing trade, and anything more is superfluous. It is also significant that in the renaming of dyes, both before and since the war, the usual terminal letters have in most instances been adhered to.

Standardization Desirable

Naturally the name of a new dye which attains wide use during the period of its

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patent monopoly becomes well established, but as soon as the patent lapses the manufacture may be taken up by half a dozen firms, who will each invent a new name for approximately the same thing. The wool dye diamond black was a good instance of this. To this general rule there were very few exceptions, and to it is due much of the redundance of which we complain. When one considers that one class of dyes with generally similar properties were sold under at least sixteen group names, and that under one such name would be included, for instance, as many as fifty "brands" of black, each with its own "mark" of letters or numbers, one may complete the picture of the dyer's confusion and also realize the role of the colorist. But it is conceivable that the unification of the German firms will involve large readjustments to avoid duplication, and this would seem likely to bring with it more exact standardization of the older dyes under well established names—a simplification which would be very welcome. Many dyes may drop out altogether.

It is more certain, on the other hand, that the stream of new dyes with new names will flow again as fast as ever. We may even expect that new products will be evolved in time from our own research laboratories; and it would be excellent if we could keep our pretty names for these, and in the meantime call a spade a spade. But our manufacturers will not wish to have their products confused with their German prototypes, and from the dyer's point of view, as long as there are differences of quality between one maker's goods and another's, it will be desirable that the name should convey the difference of origin as well as the similarity of type. In the recent examples we have quoted this double object in the name has been well attained.—*Manchester Guardian.*

Aniline Dyes in South China

Consul General George E. Anderson, writing from Hongkong on the subject of aniline dyes in China, says the efforts of American manufacturers and exporters of aniline dyes, synthetic indigo, and similar products to secure the South China trade have so far been fairly successful as compared with similar business done by many of them in previous years, but all complain that the transactions have been frankly upon a temporary basis and that there is no prospect under the arrangements so far made that the trade will endure after the war.

On the other hand, Hongkong merchants complain that American manufacturers are not willing to suit their methods to the requirements of the trade here on a permanent basis and that orders to American manufacturers will continue to be of a stop-gap sort until the importers in Hongkong and China can be protected, particularly as to trade-marks and "chops," forward contracts, and future business generally.

American exporters complain that importers here are unwilling to afford them any knowledge of the ultimate buyers of their goods, while Hongkong importers indicate that until and unless their private trademark or "chop" covering the goods is protected and they can be protected against attempts to cut under them in future trade with such ultimate buyers it is idle to expect any such information.

The fact is American manufacurers do not understand the dye business as it has been carried on in the East. They do not understand how the business has been developed, how it has been financed, how important trade-marks and "chops" are, how essential it is that the trade be carried on in a continuous way and under a definite, continuous, and consistent policy, or how the system of bonuses and rebates, built up in its development, affect its further growth.

For a good many reasons the dye market in China is far different from that in the United States, where dyes can be bought in the open market on the basis of quality which may be determined by analysis. In China no such market, in the nature of the situation, can exist. The Chinese dyer, trained in the first place in the use of native dyes and vegetable indigo, must be taught, sometimes bought, and always encouraged to use foreign dyes, which he can identify in the future only by the trade-mark or "chop" under which they were introduced to him.

(*This article will be continued in the next issue of the* Reporter.)

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